

8.1 Waimanalo

Waimānalo is the southernmost of the twelve ahupua`a within the moku of Koolaupoko. Its borders are formed by the Aniani Nui Ridge, Mount Olomana and the Kawai Ridge to the north, and the Koolau Range to the south. Although historically, the ahupua`a extended all the way to Kouli`ou`ou Ridge to include the bedroom community of Hawai`i Kai and Koko Head, the current land division follows the Koolau Ridge to Makapu`u Point. It extends eastward into Waimānalo Bay and includes the Islets of Manana (Rabbit Island) and Kaohikaipu. Waimānalo is the only town located north of the Koolau Mountain Range within the ahupua`a. The majority of the land in Waimānalo is zoned agricultural and conservation (with the exception of the area covered by Bellows Air Field), a few small pockets of business, and some residential enclaves.

8.2 Site Access & Circulation, Local Transportation Systems

The project site can be accessed from two intersections on Kalanianaʻole Highway, one at Hihimanu Road and the other at Poalima Street ([the Community Places of Interest Map? Or another map?](#)). The Poalima intersection has a traffic signal controlling it. Private automobiles and the public transit system are the predominant means of transportation for the residents. The Kalanianaʻole Highway is the major thoroughfare in the area, connecting Waimanalo to other parts of Windward Oʻahu. Downtown Honolulu is approximately 14 miles away via the Pali Highway. The area is serviced by TheBus system, which provides island-wide public transit service. Route 57, route 77, and route 89 buses connect Waimanalo to Ala Moana Shopping Center, Windward Mall at Kaneohe, and Downtown Honolulu, respectively.

Traffic can be slow along the Kalanianaʻole Highway during weekday rush hour periods and during weekends. There are at least four other significant properties in the vicinity of the project site which could potentially impact traffic. These are the Waimanalo Village Subdivision, the Waimanalo Elementary and Intermediate School, the Waimanalo District Park, and the Waimanalo Job Corps. Highway improvements were recently completed to Hihimanu Road with the installation of new sidewalks.

8.3 State Land Use

Pursuant to Chapter 15-15 of Hawaii Administrative Rules and Hawaii Revised Statutes (HRS) Chapters 205 and 205A, Hawaii's State Land Use Commission classified all of the state's lands into four broad classes: **Urban, Rural, Agricultural, and Conservation**. The project site falls in the *urban* classification. The *urban* land use classification is regulated by the City and County of Honolulu.

8.4 Zoning

Special Management Area:

In order to offer a more rigorous management of the State's coastal areas, Special Management Areas (SMA) have been defined for the Hawaiian Archipelago (State of Hawaii, 2005,c). A permit is necessary for development in area of these defined areas and many uses and activities severely restricted as to better protect fragile ecosystems. The Waimanalo Teen Project Site is not located in a Special Management Area.

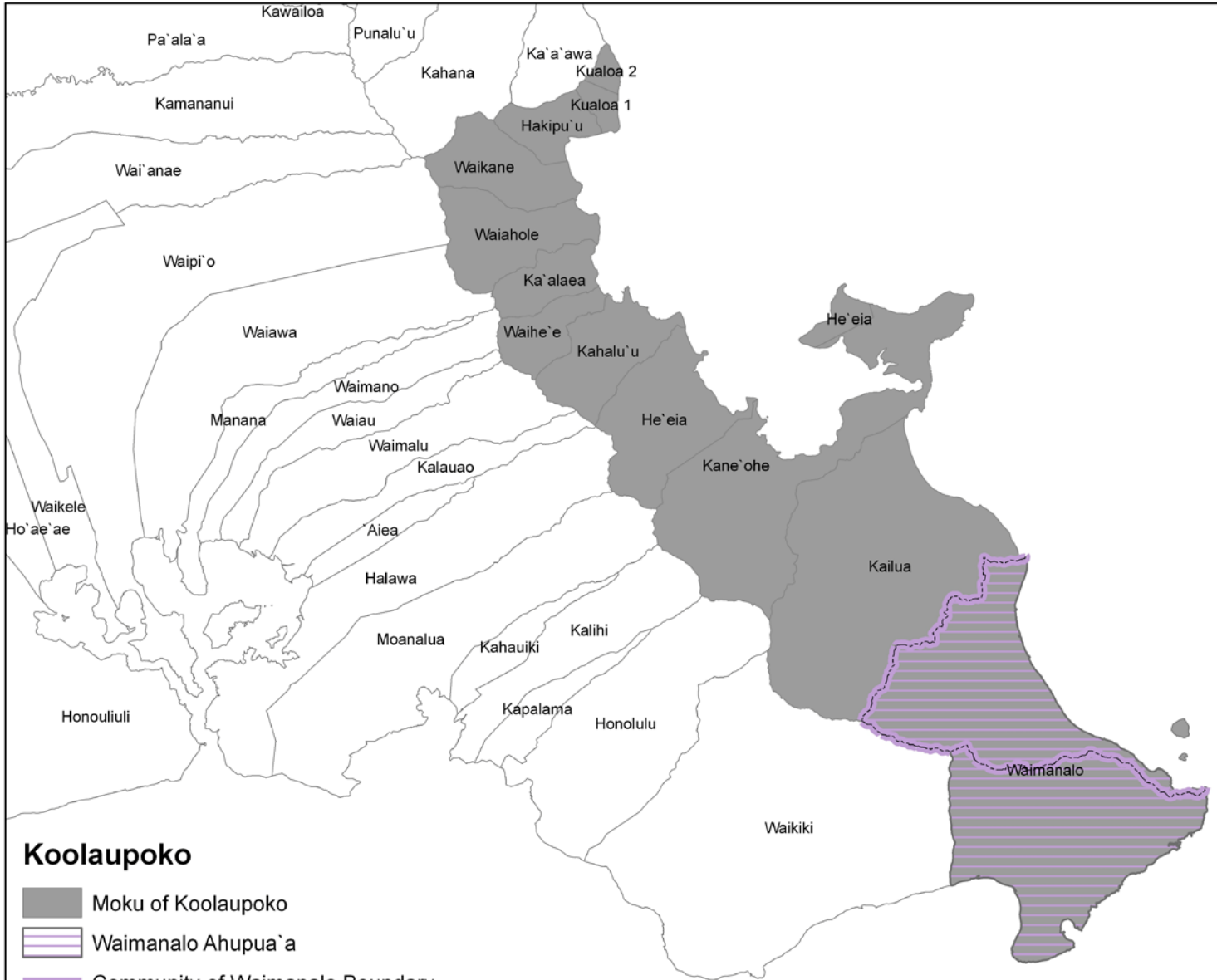
Koolaupoko Sustainable Communities Plan:

This community-oriented plan focuses on guiding public policy and economic development for the Koolaupoko district and upholding its vision for the next twenty years. The Plan's vision addresses natural, scenic, cultural, historic and agricultural resources protection, as well as restoration of the region's infrastructure as it ages. The Family and Youth Collaborative seeks to embrace this vision and the proposed project adhere to the Koolaupoko's development plan's requirements.






City and County Zoning:

The Waimanalo Teen Project site sits directly on land zoned by the City and County of Honolulu as *General Agriculture* (AG-2). The Department of Land Utilization (DLU) sets Development Plan designations for the City and County of Honolulu to adhere for zoning in Hawaii. Although the General Agriculture designation restricts the types of development which can occur on AG-2 lands and the project site, its designation, unlike AG-1, or Restricted Agricultural District Lands, AG-2 zoned lands do allow for some types of building and uses. Approximately 85% of Waimanalo's lands have been classified as *Agriculture*, and 10% *Urban*. *Conservation* lands surround the periphery of the community, and two (*Urban*) *Commercial* zones nestled at the city center, along Kalani'ana'ole Highway. The City and County of Honolulu regulates land use through zoning ordinances to ensure that Hawaii's development is orderly, and not conflicting with current land uses, development plans, and public health and safety. A full review of the City and county of Honolulu Land Use Ordinance regulations can be found in the *Federal/State Reviews of Rules and Regulations* section of this report's Appendix.

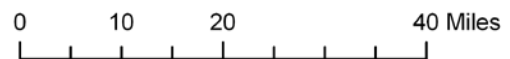
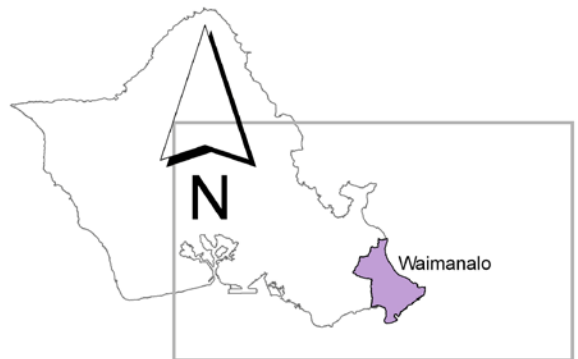


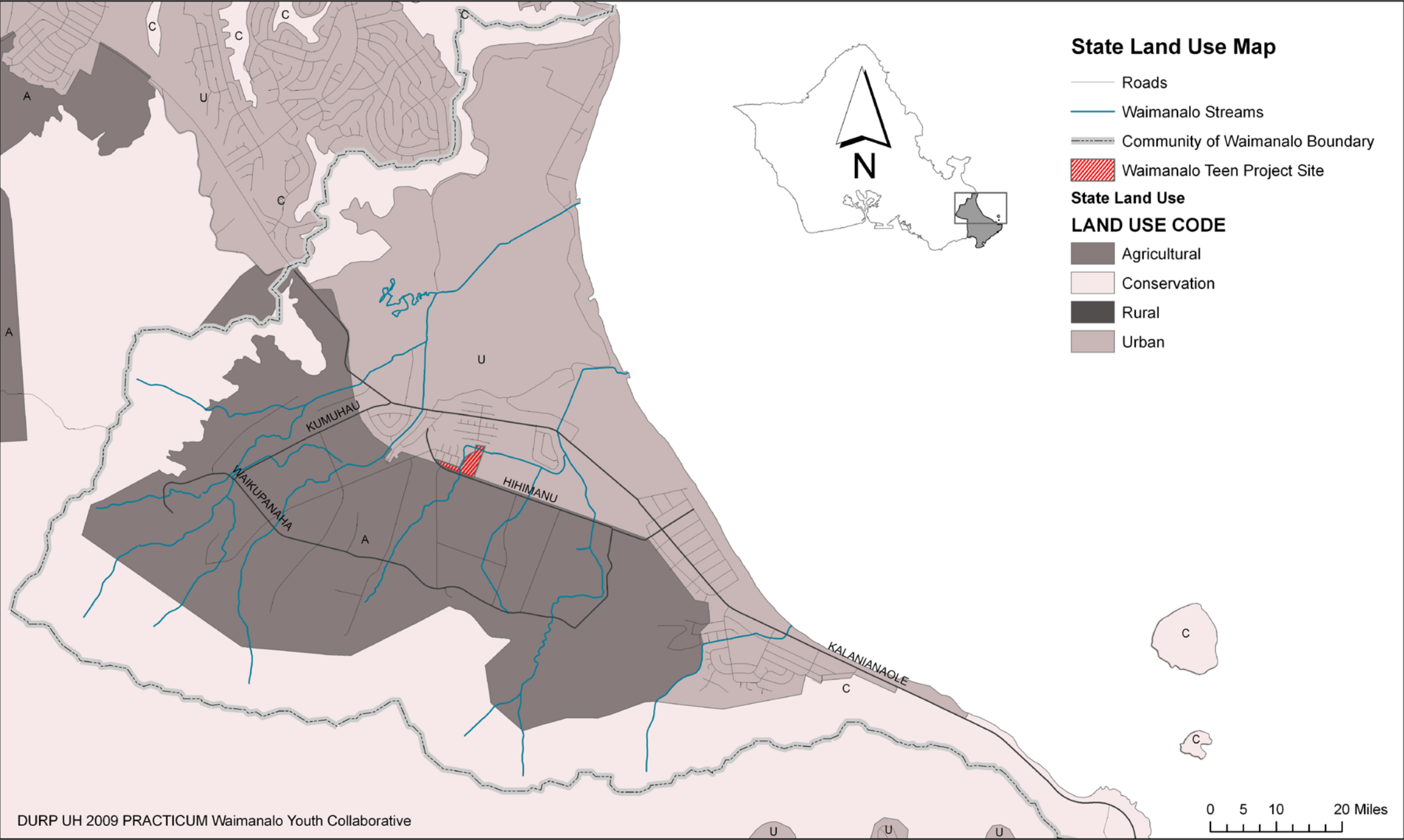


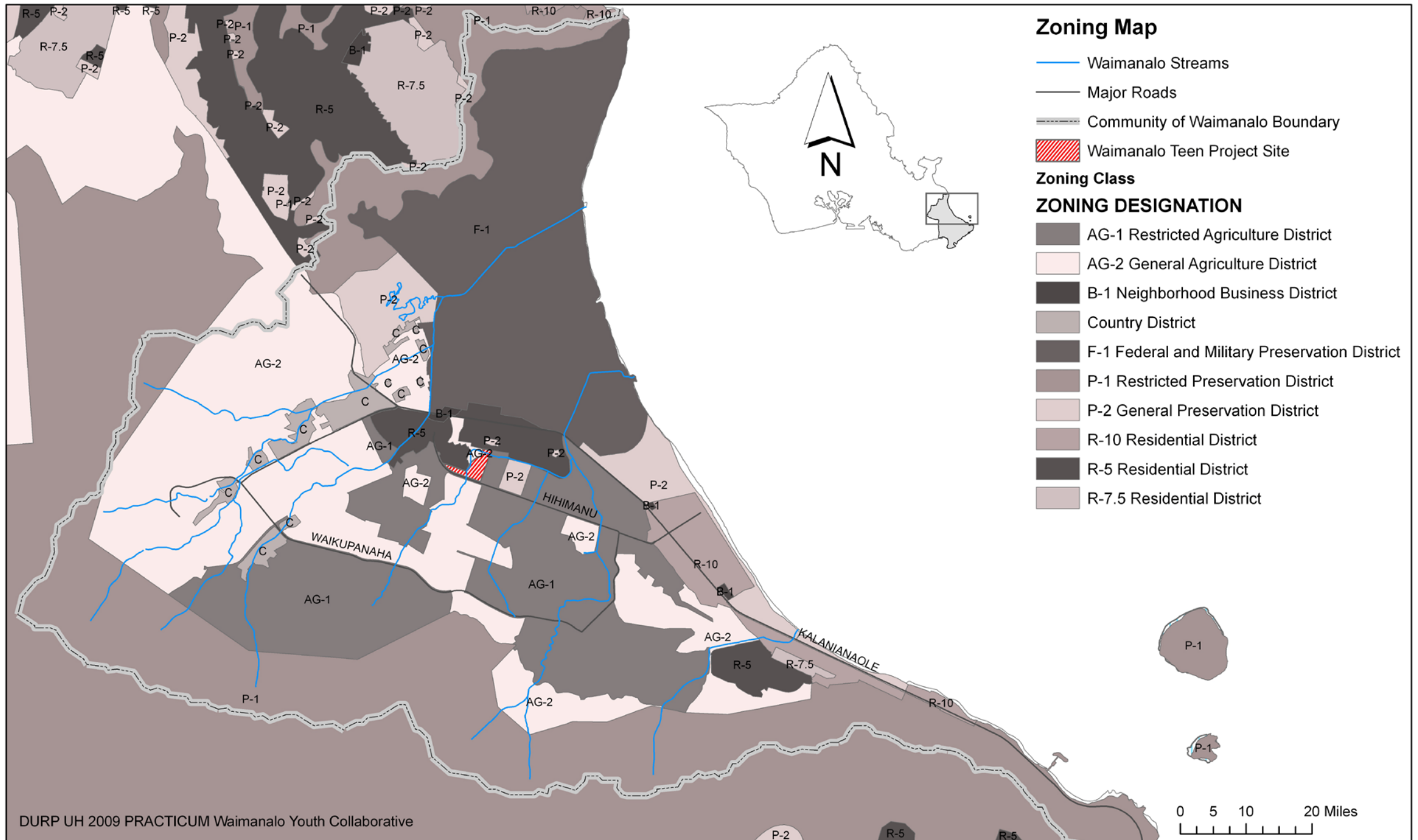
Koolaupoko

-  Moku of Koolaupoko
-  Waimanalo Ahupua'a
-  Community of Waimanalo Boundary
-  Manana Island
-  Ahupua'a Boundaries

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8.5 Land Ownership

Land ownership for the Community of Waimanalo can be divided into four categories: federal, state, county or privately owned. The Federal Government owns approximately 1,491 acre acres of lush coastal lands in the northeastern part of the community and just over 1,045 acres are used by the Marine Corps Training Area at Bellows (MCTAB).

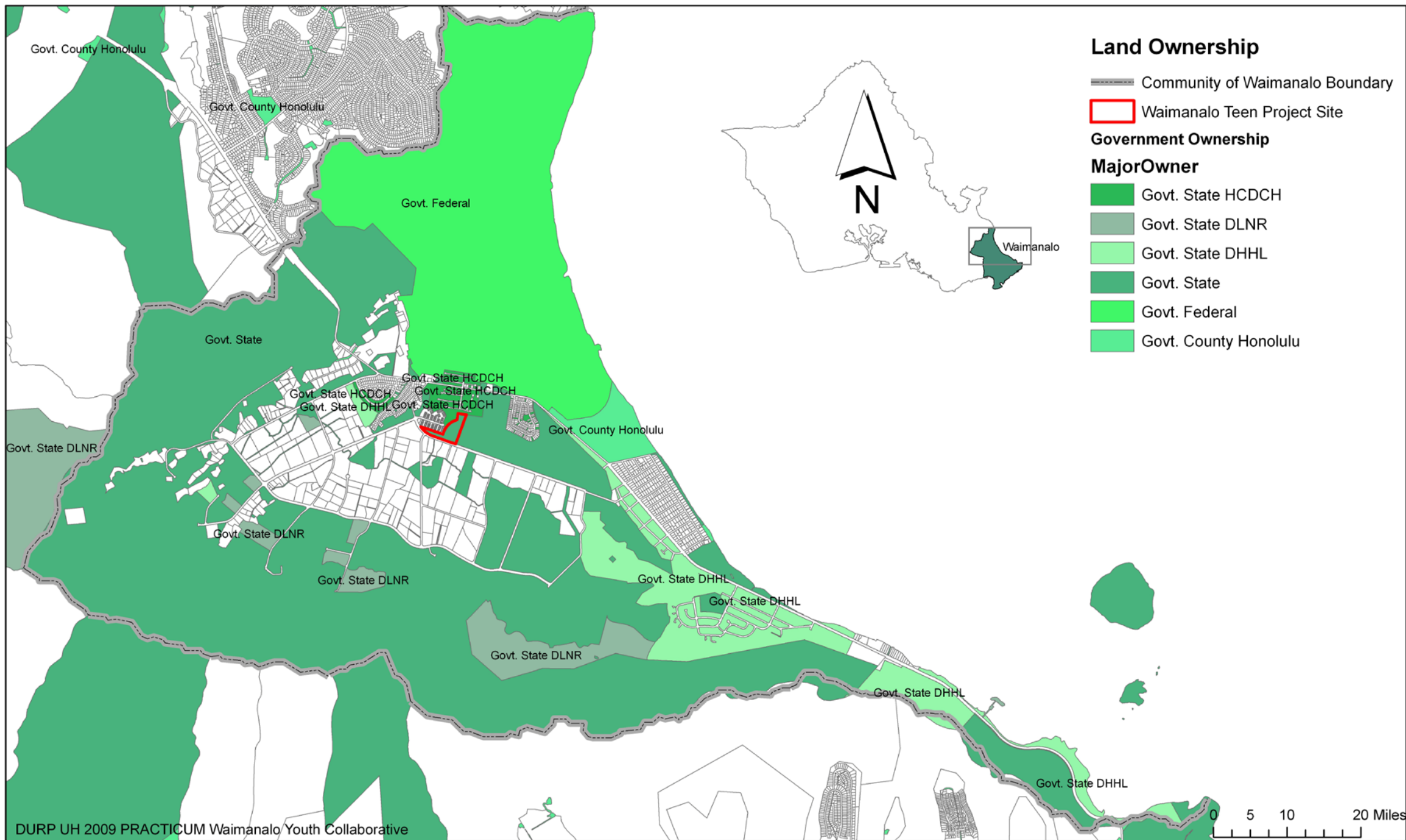
The State of Hawaii is one of the largest landowners in Waimanalo. Much of this land is under the Department of Hawaiian Homeland's (DHHL) jurisdiction (nearly 2,000 acres). DHHL provides 99-year homestead leases to Native Hawaiians at an annual rental rate of \$1 for residential, agricultural, or pastoral purposes under the Hawaiian Homes Commission Act of 1920 (HHCA). This program was set in place in order to encourage self sufficiency and economic development for the Native Hawaiian community through the provision of land. More than 3,000 Native Hawaiians out of Waimanalo's total population of over 10,000 reside on homestead lots in Waimanalo. Hawaiian Home Lands are not subject to zoning or other land use controls by the State or County.

Other State owned parcels have for the most part been leased by Hawaii's Department of Land and Natural Resources (DLNR) for agricultural uses. The City and County of Honolulu manages all other residential, commercial and public urban areas.



Although Waimanalo's size is considerable, only ten (10%) of its area is zoned residential. This plays a great part in keeping Waimanalo a wonderfully green rural area. Three main residential pockets house the majority of Waimanalo residents. Two Hawaiian homestead lots are located along the mauka (mountain) side of Kalanianaʻole Highway, separated by beachside residential streets mostly owned by higher income residents.





8.6 Community Places of Interest



The Waimanalo Teen Project site sits directly next to the Hawaii Job Corps Center, an education and training center geared towards helping young people learn a career, earn a high school diploma and develop the skills needed in order to keep a job. This federally funded free program is a opportunity for “at risk” pacific island young people, from ages 16-24 onwards to build adequate vocational and academic skills to take serious steps towards succeeding in the work environment. The Project site is also in close proximity to City and County of Honolulu’s

Waimanalo District Park, and Hawaii State Department of Education’s Waimanalo Elementary and Intermediate School.

Although no significant historic sites have been located directly on the Waimanalo Teen Project Site, the community of Waimanalo is bursting with history, with scenic vistas, ancient agricultural terracing, fishponds, and heiau. (A map depicting many of these sites can be found on the next page). Hawaii’s State Historic Preservation Division (SHPD) keeps records of all the federally and State Recognized sites. According to the National register of Historic Places, historic significance is defined as “The importance of a property to the history, architecture, archeology, engineering, or culture of a community, State, or the nation”. Abiding to special regulations becomes imperative once listed under the Hawaii or National Registry of Historic Places (under section 106 of the National Historic Preservation Act and/or Chapter 6E of the Hawaii Revised Statutes). A list of sites, including site number, name, tax map key (TMK) number place and date of registry can be obtained online at the SHPD website (<http://hawaii.gov/dlnr/hpd/hpgreeting.htm>). A total of 7 registered sites have been located for the Community of Waimanalo region (Table 8.1).

Table 8.1

National and State Register of Historic Places				
Site Number	Site Name	Tax Map Key	Hawai’i Register	National Register
80-15-382	Pohakunui Heiau	4-1-27:22	9/05/78	
80-15-489&490	Koa (Rabbit Island)	4-1-14:09	1/29/81	
80-15-511	Bellows Field Archaeological Area	4-1-15:01,15		8/14/73
80-15-516	Waimanalo Taro Terraces	4-1-10:01	6/17/87	
80-15-1031	Heiau	4-1-08:05	1/29/81	
80-15-1037	Pahonu Turtle Pond	4-1-02:07	9/2/78	
80-15-4042	Waimanalo Ditch System	4-1-08,4-1-10,4-1-11,4-1-13		9/18/81

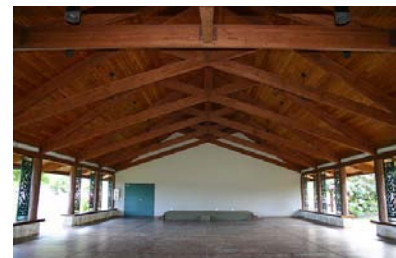


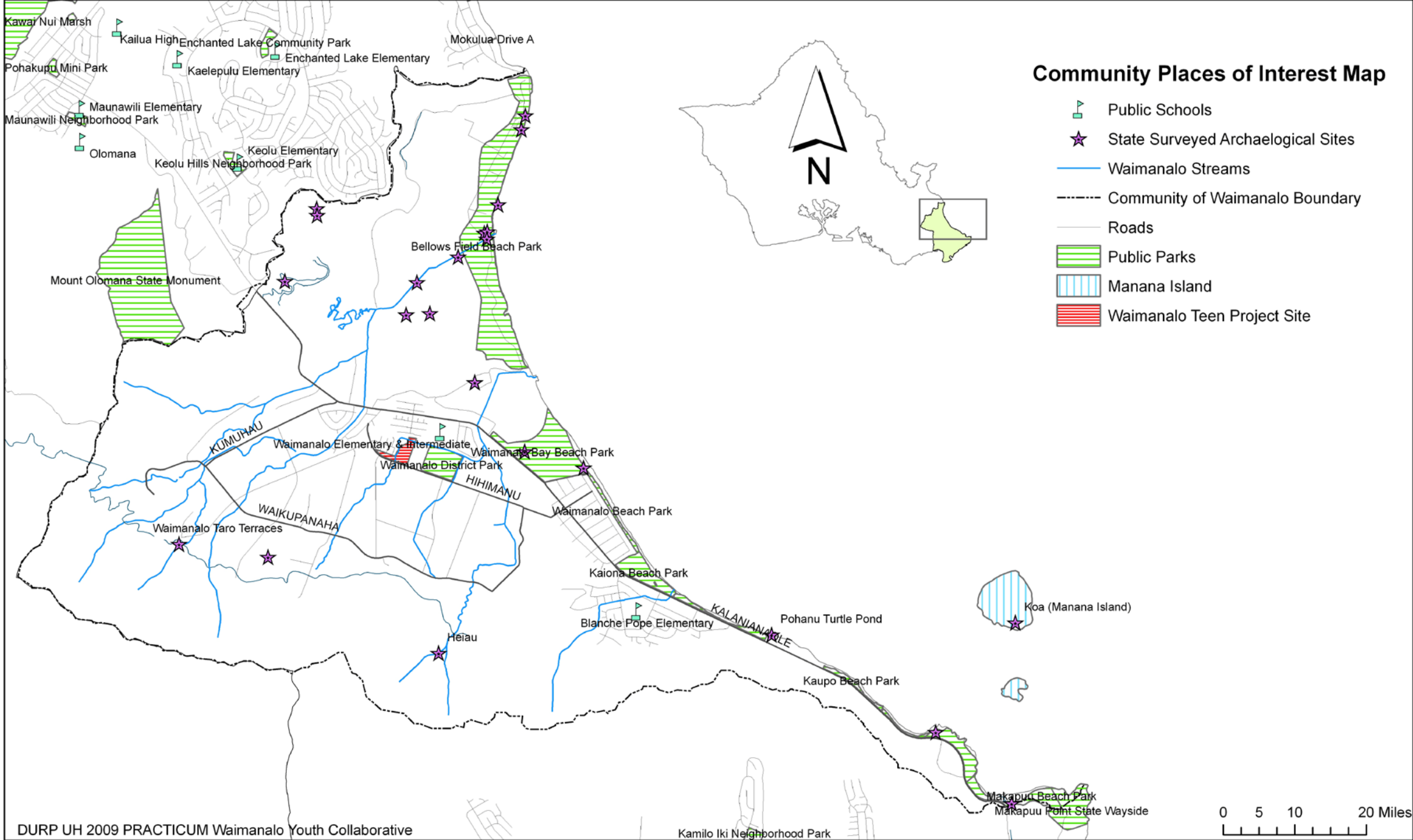
Public Services in Waimanalo include one fire Station, and a community health center (Waimanalo Health Center). There is no Hospital in Waimanalo, but Castle Medical Center, in nearby Kailua, provides health services to the Waimanalo Community as well as serving the entire

Windward region. Queen Lili`uokalani Children's Center (QLCC), a social service agency whose commitment is to the orphaned and destitute children in the State of Hawai'i, with preference given to those of Hawaiian ancestry. The community also boasts two public schools; Blanche Pope Elementary, as well as Waimanalo Elementary and Intermediate (which also houses the community's public library).

Parks facilities consist of four main parks; the Waimanalo Beach Park which extends approximately 5.5 miles along the coast, the Waimanalo District Park, the Honolulu Polo Fields and Bellows Air Force Station, which is managed by the federal government and features unique reserve areas which provide nesting places for many of the Islands' endangered species. Ocean activities play a great part in the community's recreational lifestyle. Other recreational resources include Olomana Golf Course, Kaiona Beach Park, Kaupo Beach Park, Makapu'u Beach Park, the Ka Iwi scenic shoreline and horseback riding.

The Hawaii State Department of Hawaiian Homelands (DHHL) owns nearly 2,000 acres of land in the Waimanalo Community. This land, reserved for people of more than 50% Hawaiian ancestry houses more than 3000 people. A Homestead Community Center was built to serve the more than 600 homes which together make up the Waimanalo Homesteads. This culturally sound Hawaiian style *Halau*, or open space gathering space, has been the home to monthly Community Togetherness meetings held by the Asian/Pacific Islander Youth Violence Prevention Center, and a great asset to the community as a whole, promoting economic development and a gathering place for residents since July 2004.





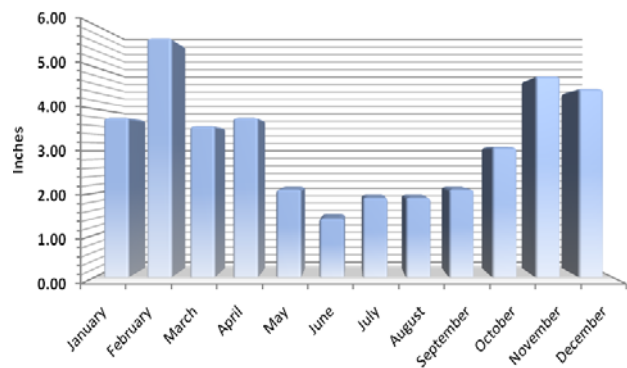
8.7 Flood Zones and Rainfall



According to the Federal Emergency Management Agency (FEMA), the project site falls in one of the special flood hazard areas which are subject to a one percent (1%) annual chance of flood. More precisely, the site sits in flood hazard zone AE: Base Flood Elevations Determined. Flood hazard zone AE, also known as the 100 year flood zone is a flood insurance rate zone which corresponds to areas of one percent (1%) annual chance of shallow flooding, with a constant water-surface elevation where average depths are between 1 and 3 feet. (fema.gov).

Oahu's subtropical climate affords the project area with generally mild and consistent temperatures year round (From seventy eight degrees Farenheit in August to seventy degrees in January). Average yearly rainfall in Waimanalo varies according to elevation but typically ranges from 40 inches at the sea level elevation to around 100 inches at the Koolau Mountain elevation. Monthly rainfall also varies according to seasonal changes. During the wet season, which generally begins around November and extends until the end of April, average monthly rainfall is 4.4 inches, whereas the dry season sees an average monthly rainfall of 2.1 inches between May and October.

Average Monthly Rainfall in Waimanalo



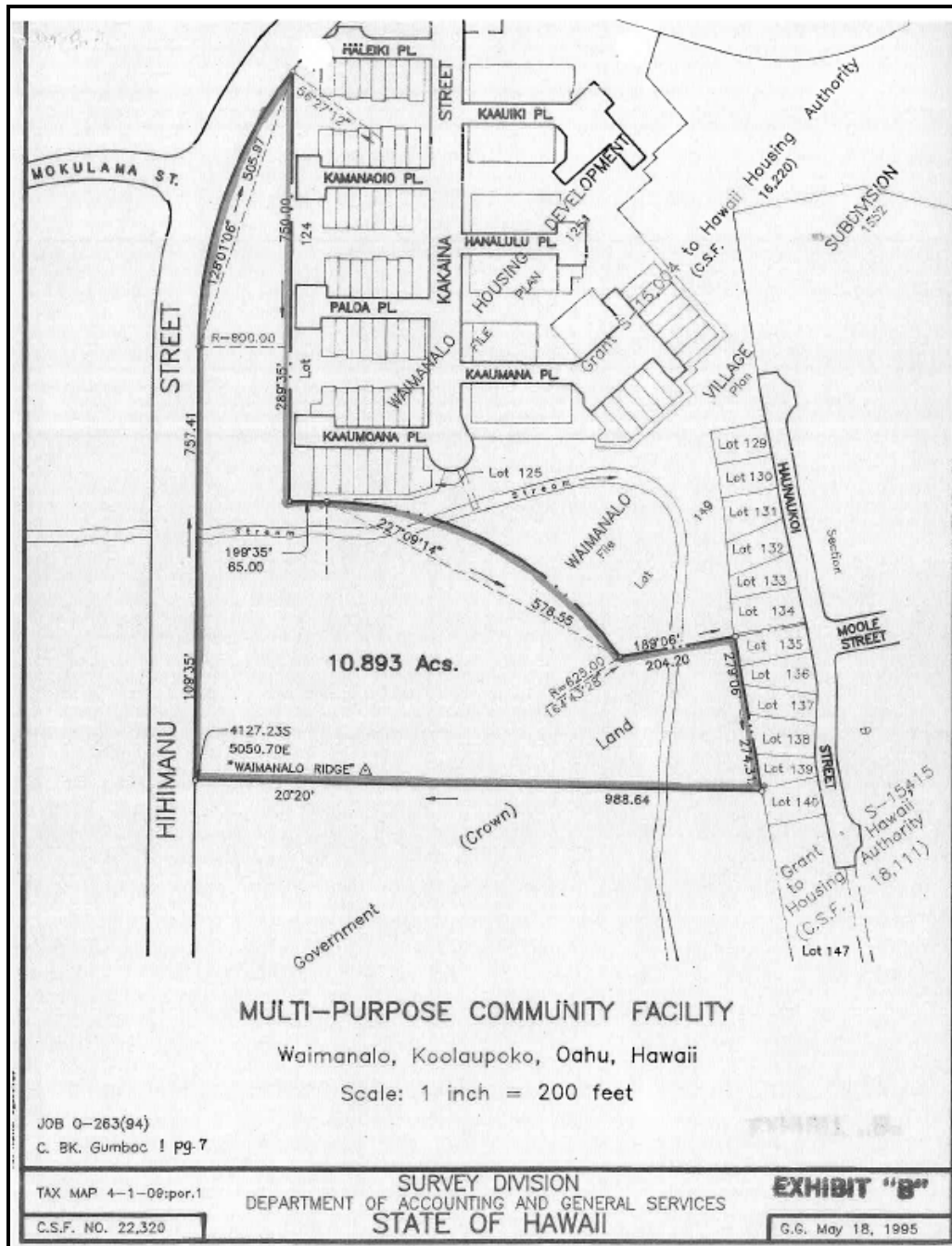
Month	Inches/month
January	3.8
February	5.7
March	3.6
April	3.8
May	2.1
June	1.4
July	1.9
August	1.9
September	2.1
October	3.1
November	4.8
December	4.5

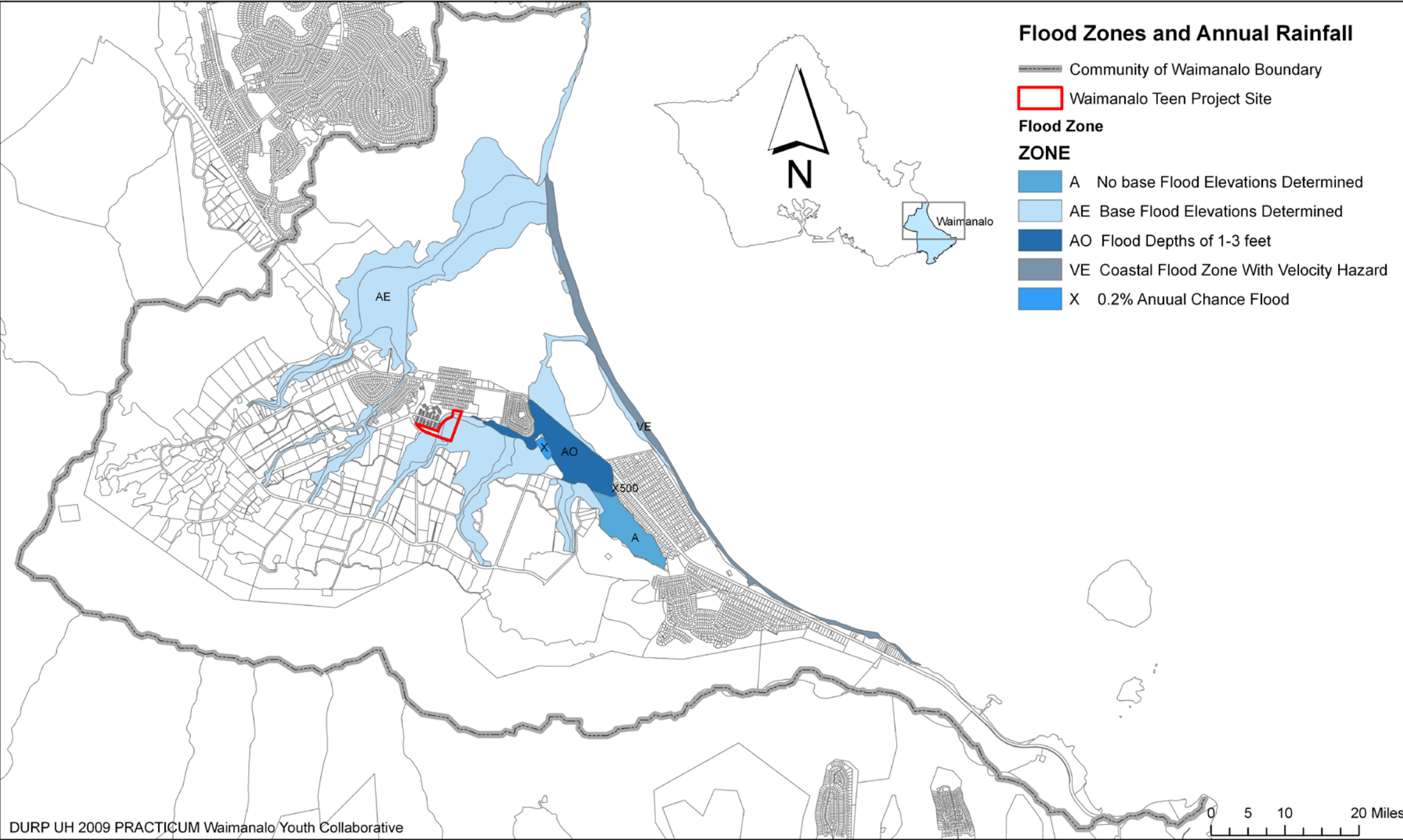
Data Source: http://www.myforecast.com/bin/climate.m?city=143148&zip_code=96795&metric=false

8.8 Project Site




The proposed project site chosen for this plan is the current site for The Waimanalo Teen Project, a 10.893 acres Lot Sq. Ft situated at 41-477 Hihimanu Street in Waimanalo. The site's Tax Map Parcel number is 1-4-1-009-265. Its owner is State of Hawaii and the property's land tenure is leasehold. The property has been leased from the State of Hawaii's Department of Land and Natural Resources (DLNR) to The Waimanalo Teen Project, a Hawai'i Non-Profit Corporation (General Lease NO S-5468), as a "Multi Purpose Community Facility", since 1996 for the term of sixty-five (65) years.

Below, a State of Hawaii's Department of Accounting and General Service's Survey Division map showing the parcel's boundaries was obtained directly from the a copy of the General Lease.





Project Site -TMK 41009265

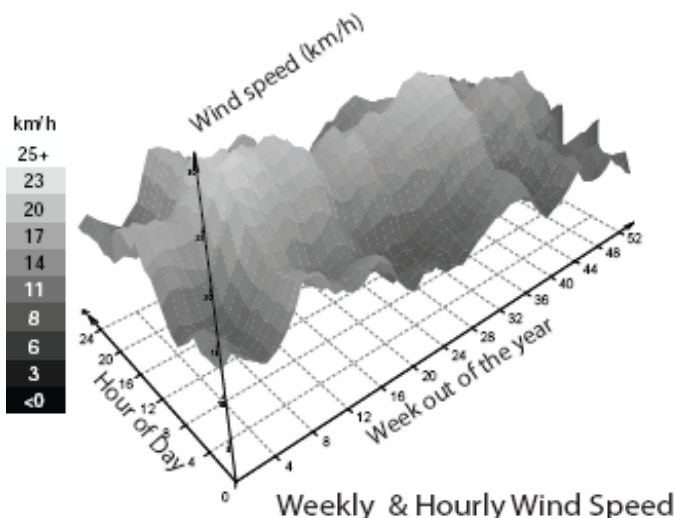
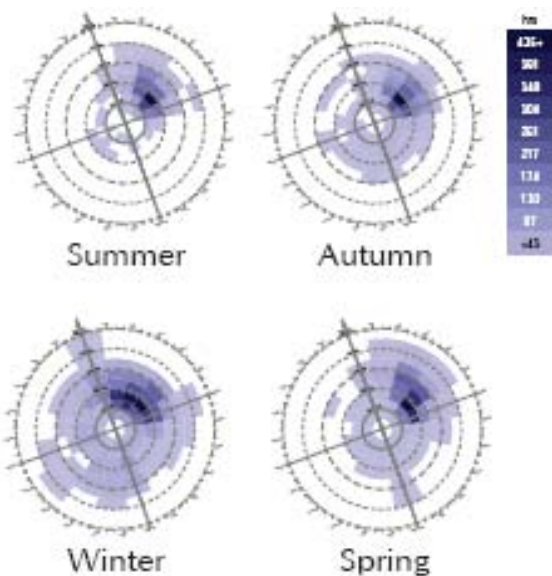
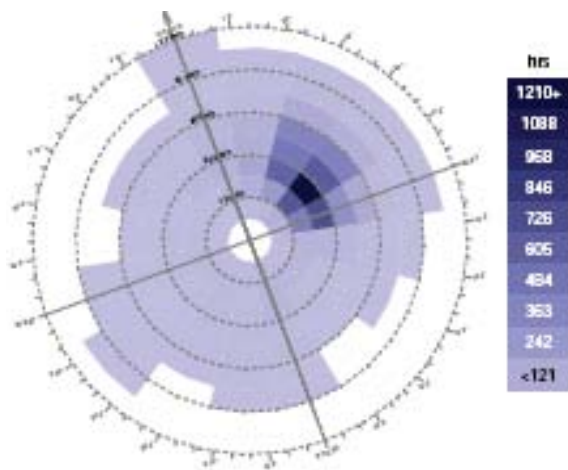
-  Waimanalo Elementary and Intermediate
-  Major Roads
-  Waimanalo Teen Project Site



0 5 10 20 Miles



8.9 Wind Analysis

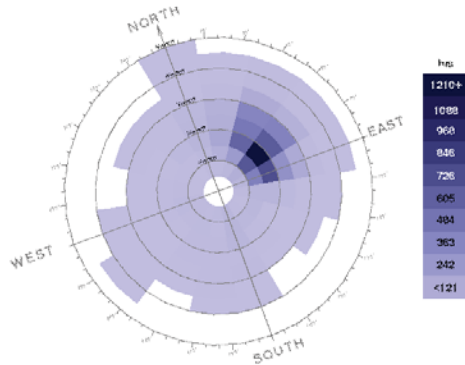


The wind rose diagram to the left indicates that the prevailing winds for windward Oahu come from the east northeast direction at an average speed of 5 and 20 kilometers per hour. This translates to roughly 9.3 to 12.4 miles per hour. The darkest region of the diagram shows that the amount of time that the wind blows at that speed and from that direction is greater than 1,210 hours out of the year, or about 14.5%.

The wind rose diagrams to the left show the prevailing winds for each season out of the year. The season with the most consistent easterly Trade winds, which is also the driest season out of the year, is summer. Winter is the season with the greatest variation in wind direction. This is due to the change in weather patterns in which the jet stream dips further south bringing more frequent low pressure systems, also known as cold fronts. During such events, the wind direction shifts from easterly to southerly bringing warm, moist air from the south. This pattern, known as the Kona winds, named after region on the island of Hawai'i from where they come, bring with them the rains for which the winter season is known.

The graph to the left plots wind speed in the Y axis, week of the year on the X axis, and hour of the day in the Z axis. There is not as much of a variation in wind speed from onetime of the year to the next as there is in the time of day. The diurnal variation in wind speed could be due to the combined effects of the Trade winds and land/sea breezes. Since the coast at Waimanalo runs northwest - perpendicular to the Trade Wind direction, the noontime peak in wind speed is from the sea breezes and Trades working in concert and the midnight lull is from the land breezes and Trades cancelling each other out.

Wind Analysis and Vegetation



Legend



Prevailing wind direction

Site wind patterns as influenced by vegetation and built structures

Haole Koa along stream.

Vegetation in this area is mostly Haole Koa with some Kukui Nut trees, Banana, and Ulu trees.

Large Monkeypod

Areca Palms

Pua Kenikeni



8.10 Geotechnical and Soils Data

The Waimanalo site is situated on an almost flat alluvial upland area at the foot of the Koolau Range. Based on U.S. Department of Agriculture soils data, the Koolau Mountain Range is a series of eroded, southward-dipping, thin-bedded lava flows of the Koolau Volcanic series. An overview of the area reveals scattered dikes which mostly strike north or northeast, almost perpendicular to the crest of the Range. Older and younger alluvium overlies eroded basalt at the base of the mountains and lowlands.

The upland area surface extends from the base of the mountains to the shoreline. This surface contains older, clayey alluvium that transitions to younger alluvium and finally, to more recent dune and beach sand near the shoreline.

Based on the soils tables, the general soil distribution in the area are of the Kaena-Waialua Association which are typically found on coastal plains, talus slopes and in drainage ways. Soils from this association include Haleiwa, Kaloko, Waialua and coral outcrop within the vicinity of the site. Ewa, Mamala and fill land were other soils found in the area. The geotechnical implications of these soils are noted on **Table 1**.

It is recommended that any construction activity on the property which would involve vegetation removal and disturbing these soils adhere to good engineering practices such as those specified in Soil Erosion Standards and Guidelines, City and County of Honolulu.

TABLE 1

**CHARACTERISTICS OF SOIL TYPES FOUND IN THE WAIMANALO PLANNING AREA
(TAKEN FROM THE WAIMANALO JOB CORP ENVIRONMENTAL ASSESSMENT)**

<u>Map Symbol</u>	<u>Soil Features Affecting Foundations for</u>	
	<u>Soil Type</u>	<u>Low Buildings</u>
<u>KAENA-WAIALUA ASSOCIATION</u>		
CR	Coral Outcrop	NA
HeA	Haleiwa silty clay 0-2% slopes	All Features favorable
HeB	Haleiwa silty clay 2-6% slopes	All Features favorable
KfB	Kaloko clay, non-calcareous variant	High-shrink-swell potential; Wetness; low shear strength
WnB	Waialua clay 2-6% slopes	Moderate-shrink-swell potential; Low shear strength' stoniness in places
<u>OTHERS</u>		
EmA	Ewa Silty clay loam 0-2% slope	All Features favorable
FL	Fill land, mixed	NA
MnC	Mamala stony silty clay loam	Coral at a depth of less than 20";
	0-12% slopes	slopes as much as 12%; stoniness

8.11 Site analysis-Topography of the Project Site

The proposed site is irregular in shape and consists of 10.893 acres of semi-developed land. There are existing structures upon the site which occupy approximately 8000 sq. ft. of building space with accompanying areas designated for parking and vehicular access.

The majority of the site is primarily grass with overgrown wooded areas to the western end and perimeter areas. The site is predominantly flat and slopes gently from south to north. There is a drainage area on the western side of the property that divides the larger grassy areas from the overgrown wooded portion.

The drainage runs from south to north and the northern side of the stream catchment area rises sharply upward to meet the adjacent properties at the edge of the property line. According to the Flood Insurance Rate Map (FIRM), the entire area is in the 100 year flood zone. The site is lower than Hihimanu Road and the Federal Job Corps site along the eastern boundary.

8.12 Utilities - Electrical, Telecommunications, Plumbing, Sewer, CATV

The Waimanalo area is provided electricity by the Hawaiian Electric Company (HECO). 12.47 KV electric service is available from lines along Hihimanu Road which fronts the property. The estimated electrical needs of any significant improvements to this property are unknown at this time. According to its environmental assessment, the neighboring Job Corps site required a transformer rated at approximately 500 KVA to provide electrical service to its area. It had an estimated electrical requirement of 435 KVA, 524 amperes at 380 volts, 3 phase, 4 wire. There were no significant increases anticipated.

The power lines are located underground on the eastern border of the property. Accompanying telecommunication and CATV lines would access from the same area.

Solid waste from Waimanalo is reported to be hauled to the H-Power Plant at Campbell Industrial Park for incineration or to the Waimanalo Gulch Landfill located in the hillsides above Ewa in Leeward Oahu. There are no special waste requirements for medical or toxic wastes anticipated from activities conducted on the property.

The Board of Water Supply provides water to the site. The 1985 Water System Standards for the State of Hawaii require a minimum flow for fire protection of 2,000 gallons per minute sustained for 2 hours. There is a fire plug onsite, but according to the Executive Director, it is located too close to the structures to be effective in the event of a building fire. Thus, the site relies upon hydrants located along Hihimanu Road. The estimated water demand for the Job Corps site next door is about 30, 200 gallons per day. Depending on the type and duration of activity levels at this site, consumption rates may fluctuate in this range. An 8-inch water main located on the mauka side of Hihimanu Road to which a required 3/4" meter connection is made.

The Waimanalo Sewage Treatment Plant services this area and is located approximately a mile away. The State of Hawaii owns the plant, but the City and County of Honolulu operate and maintain it. There were no sewers planned along Hihimanu Road in the 1983 Facilities Plan and the Wastewater Division did not anticipate problems with hooking up to the main on Kalanianaʻole Highway. The average estimated flow is 17,500 gallons per day. On site there is a sewage pump to cycle waste into the gravity flow system.